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Serial No.: 09/497,967
Confirmation No.: 8124
Filed: February 4, 2000
For: DIAGNOSTIC AND PROTECTIVE ANTIGEN GENE SEQUENCES OF ICHTHYOPHTHIRIUS

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

- 1.-2. (Cancelled)
3. (Currently Amended) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleotide sequence that encodes an antigenic portion of an i-antigen polypeptide having amino acid sequence SEQ ID NO:7, said antigenic portion of the i-antigen polypeptide comprising at least about 60 amino acids and being capable of inducing an immune response in a fish against *I. multifilis* amino acids 21-452 of SEQ ID NO:7.
4. (Currently Amended) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleotide sequence that encodes at least one terminal membrane targeting portion of an i-antigen polypeptide having amino acid sequence SEQ ID NO:7, said terminal membrane targeting portion comprising at least about 10 amino acids and being capable of targeting a polypeptide to either the endoplasmic reticulum or to the plasma membrane wherein said terminal membrane targeting portion is encoded by SEQ ID NO:19 or SEQ ID NO:20.
5. (Previously Presented) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleic acid sequence that encodes SEQ ID NO:7.
6. (Previously Presented) The nucleic acid molecule of any of claims 3-5 or 36 that is a vector capable of expressing the polypeptide encoded by the nucleic acid sequence in a *Tetrahymena* host cell.

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7.- 9. (Canceled)

10. (Currently Amended) An isolated nucleic acid molecule comprising at least 50 nucleotides that hybridizes with any of the nucleic acid molecules of claims 3-5 or 36 under conditions exemplified by about 150 mM NaCl, 15 mM trisodium citrate, and pH 7.6 at 55°C.

11. (Currently Amended) An isolated nucleic acid molecule comprising a polynucleotide fragment comprising at least 50 nucleotides that hybridizes to at least a portion of the complement of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:44, SEQ ID NO:19, SEQ ID NO:20 or SEQ ID NO:102 under conditions comprising about 150 mM NaCl, 15 mM trisodium citrate, and pH 7.6 at 55°C, wherein the polynucleotide fragment encodes a polypeptide comprising at least a membrane targeting portion or an antigenic portion of an i-antigen protein, wherein said antigenic portion is capable of inducing an immune response in a fish.

12.-13. (Canceled)

14. (Previously Presented) A composition for inducing an immune response in a fish, said composition comprising at least one nucleic acid molecule of any of claims 3-6, 10, 11 or 36.

15.-16. (Canceled)

17. (Original) The composition of claim 14 wherein administration of the composition to fish prevents or controls *I. multifiliis* infection.

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18. (Currently Amended) The composition of claim 14 wherein the polypeptide encoded by the nucleotide sequence is encodes an antigenic portion of an i-antigen polypeptide linked at its carboxy-terminus to a plurality of molecules of the C3d component of complement.
19. (Original) The composition of claim 14 formulated for oral administration.
20. (Currently Amended) The composition of claim 19 wherein the polypeptide or nucleic acid molecule is encapsulated in a biodegradable polymer.
21. (Previously Presented) A *Tetrahymena* host cell transformed with the nucleic acid molecule of claim 6.
22. (Canceled)
23. (Previously Presented) Transformed *Tetrahymena* comprising the nucleic acid molecule of any of claims 3-6, 10, 11 or 36.
- 24.-35. (Canceled)
36. (Previously presented) The nucleic acid molecule of claim 5 comprising at least one nucleotide sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:44 and SEQ ID NO:102.
37. (Canceled)
38. (New) A nucleic acid molecule which is complementary to any of the nucleic acid molecules of claims 3-5 or 36.